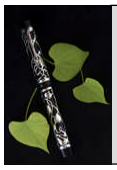
Powering the Post-Carbon Commute

How Microsoft can become the world's greenest corporation



A Green Paper
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SUMMARY

A confluence of irreversible trends will make telecommuting increasingly popular over the next two decades. By 2030, almost all white-collar workers worldwide will telecommute from home or from telework centers at least one day a week, and many will telework exclusively. Not anticipating this trend would have serious consequences for Microsoft because whoever captures the market for telecommuting solutions will control much of the infrastructure of home and business computing. Some technology companies are aggressively entering the telecommuter solutions arena. But Microsoft, more than any company, is ideally positioned to dominate this market. By emphasizing and enhancing the teleworker-empowering features of its products, Microsoft can position itself as the world's leading vendor of teleworker solutions. In the process, Microsoft can become the world's preeminent "green" corporation, not only by saving tens of billions of hours of commute time, but by helping reduce emission of the hundreds of billions of tons of greenhouse gases that the 40% of the world's workforce who can telework would otherwise produce.

CRISIS

> *"Most studies estimate that oil production will peak sometime between now and 2040…The amount of oil remaining in the ground is highly uncertain."*[1]
> -US General Accountability Office

The news is grimly familiar. The era of cheap oil is gone, never to return. Workers face constantly rising prices for the liquid-hydrocarbon fuels that powered economies and drove commuting during the 20th century. Commutes are becoming longer and more expensive, and highways, bridges, and other infrastructure elements built mostly for solo commuters are increasingly expensive for government at all levels. Most alarmingly, the threat of a looming environmental and economic catastrophe—global warming—will soon limit the widespread use of fossil fuels everywhere.

The end of cheap oil

> *"We are running out of the cheap, pumpable oil that has fueled the economic development of the 20th century."*[2]
> -Hubbert Peak of Oil Production site

In 2007, $100/barrel was the ceiling on crude oil prices; for most of 2008, $100/barrel was the floor. While the price of crude collapsed at the end of 2008 because of the declining world economy, almost everyone who follows the oil business believes that in the long run, rising demand from China, India, Brazil, and other emerging economies combined with static oil supplies will drive the price of oil ever higher. Authoritative sources such as the *British Petroleum Statistical Review of World Energy* show that reserves of cheap, easily extractable oil are declining everywhere while demand continues to rise. If China, for example, uses only as much oil per capita as Japan, Chinese consumption will reach 18 billion barrels annually, dwarfing the 7.5 billion barrels that the United States uses annually.[3] Most oil-industry analysts predict that with proven oil reserves shrinking and demand growing steadily at today's pace, gasoline prices in the United States may rise to $10/gallon within 10 years.[4]

Constantly increasing commute times

"Congestion caused urban Americans to travel 4.2 billion hours more and to purchase an extra 2.9 billion gallons of fuel for a congestion cost of $78 billion."[5]
- Texas Transportation Institute, Texas A&M University System

American workers spend more and more hours commuting yearly. Congestion affects most of America's 437 urban areas and is getting worse everywhere. Americans drive an average of about 24.3 minutes each way and spend more than 100 hours a year commuting to work.[6] This exceeds the two weeks of vacation time (80 hours) taken by most workers annually.[7] Workers at higher income levels and those who work at least 40 hours a week tend to have longer commutes than others.[8] In 2005, commuters driving during peak hours averaged 47 hours stuck in traffic, up from just 16 hours stuck in traffic in 1982. Americans lose more than time on the daily commute. In 2005, traffic congestion robbed the U.S. economy of $78 billion/year in productivity and idled away almost 3 billion gallons of gas—an increase of 220 million hours, 140 million gallons, and $5 billion from 2004.[9]

A failing transportation infrastructure

"Our infrastructure is sliding toward failure and the prospect for any real improvement is grim…Americans spend 3.5 billion hours a year stuck in traffic, at a cost of $63 billion a year to the economy."[10]
-William Henry, president, American Society of Civil Engineers

A costly, crumbling transportation infrastructure threatens the economy and quality of life in every state, city and town in America. The American Society of Civil Engineers estimates that the United States must invest $1.6 trillion in federal, state and local funds over a five-year period to bring the nation's infrastructure up to a condition that meets the needs of its current population, without even accounting for future population growth.[11] The nation is failing to maintain even current infrastructure conditions—a dangerous trend that affects highway safety and the health of the economy. Poor road conditions cost U.S. motorists $67 billion a year in repairs and operating costs–$333 per motorist.[12] By 2025 we'll need another 104 thousand additional lane miles, which will cost 530 billion. What's more, the federal Highway Trust Fund, which funds most highway projects in the country, is bankrupt. States have slammed the brakes on millions of dollars of highway construction projects and are scrambling to substitute state funds for federal funds that have been cut off.[13]

The catastrophe of global warming

"To contain the rise in temperatures below 2-2.4°C, which, according to our studies, is the threshold not to be crossed without putting us in serious danger, we have seven years left to reverse the CO2 emissions curve. That's very little time."[14]
- Rajendra Pachauri, IPCC Chairman and Nobel Laureate

Even if fossil fuels returned to 1990 prices, the industrialized could not take advantage of them because the threat of global warming caused by greenhouse gas (GHG) emissions is increasingly dire. In 2007, the Intergovernmental Panel on Climate Change (IPCC) reported that warming of the climate system is unequivocal, evidenced by observed increases worldwide in average air and ocean temperatures, widespread melting of snow and ice, and rising sea levels. Eleven of the last twelve years (1995-2006) were among the twelve warmest measured since 1850 in global surface temperature. Average temperatures in the Northern Hemisphere during the second half of the 20th century were very likely higher than in any other 50-year period in the last 500 years and likely the highest in at least the past 1300 years.[15]

OPPORTUNITY

"A crisis is a terrible thing to waste."
-Stanford economist Paul Romer

The problems outlined so far are well understood. What isn't well understood is what to do about them. That misunderstanding is Microsoft's biggest asset. Microsoft's leaders have often been brilliant at developing elegant solutions that cut through the fog of uncertainty that invariably surrounds complex problems. Microsoft can play that role again by offering a comprehensive solution to the greatest crisis of our time—the combined, interlinking problems of fossil-fuel depletion, transportation gridlock, and global warming. The solution is elegantly pragmatic: Bring work to knowledge workers instead of the other way around. *Use technology to replace physical commuting with telecommuting on a massive scale.*

Negawatts: The greenest energy is that which isn't used

"The largest opportunity identified within dematerialization is teleworking."[16]
-The Global eSustainability Initiative

Why would massive telecommuting solve the impending energy, transportation, and global-warming crisis? Because massive telecommuting adheres to the basic hierarchy of resource conservation: *reduce, recycle, and reuse*. The most effective R by far is *to reduce*. Many companies today are developing clean, green energy technologies, but the biggest return on investment will come from inventing or applying technologies that reduce energy use. An ideal way to reduce energy use is through *dematerialization:* substituting high-carbon products and activities with low carbon alternatives; for example, replacing face-to-face meetings with videoconferencing, or paper bills with e-bills. Dematerialization generates what energy expert Amory Lovins calls *negawatts*—the savings gained from not using a watt of electricity or a gallon of fuel.

The green enabling effect of information technology

""When we have these triple-efficiency or better clean, safe, wonderful, affordable vehicles, having 10 million Londoners, Los Angelenos, New Yorkers, or Bejingers driving them still won't work. Instead of running out of air, oil, and climate, we'll be running out of roads, land, and patience. It's the constraint du jour. We need to have great, green cars, and we also need to drive them less."[17]
-Amory Lovins, NOVA TV special

Internally, Microsoft has made great strides in reducing its GHG emissions, recycling products, fostering alternative commuting, and so on. Externally, Microsoft has been an industry leader in programs that, for example, reduce power consumption in servers. But Microsoft and the entire ITC sector could play a vastly larger role in protecting the environment by empowering society to reduce GHG emissions. A recent study shows that the entire ITC sector could reduce global GHG emissions by an amount five times larger than its own carbon footprint by 2020, with savings in electricity and fuel consumption of $946.5 billion. Most of these savings would come from dematerialization, and the largest opportunity identified within dematerialization is teleworking. Although other dematerialization opportunities may come to prominence in the future, the study found that, based on historic trends, teleworking would have the largest impact—up to 260 million tons of CO2 emissions ($MtCO_2e$) each year. If up to 30 million people in the US would telework from home, they would reduce GHG emissions 75-100 $MtCO_2e$ in 2030—comparable to reductions from other measures such as fuel-efficient vehicles.[18]

Killing the commute for a billion workers worldwide

"We may be at a genuine tipping point. The rising price of gasoline and other energy appears to be affecting people's actual behaviors—on the job and off."[19]
-Jim Ware, *The AppGap*

Estimates of the percentage of workers in the developed world who could telework at least one day a week vary from 40% to 50%: the percentage of white collar workers in the workforce. In the US, teleworking has grown considerably in the last year, from 30% of organizations saying they offer it to employees in 2007 to 42% in 2008. About half of all large US companies let some employees telework.[20] Because of rising oil costs, 33% of all companies polled are replacing physical travel for employees with Web conferencing, videoconferencing, and teleconferencing. A study by International Data Corporation (IDC) predicts that the mobile worker population worldwide will amount to a billion people in 2011, up from 758.6 million in 2006. This represents a CAGR of 5.8%. In addition, the mobile worker population's share of the total workforce worldwide is expected to increase from 24.8% in 2006 to 30.4% in 2011. By 2011, IDC expects nearly 75% of the US workforce will be mobile enough to telework.

Telework—the clean, green, endless fuel

Telework: *Substituting information technologies for work-related travel.*

Telecommuting: *That portion of teleworking that applies to the daily commute to and from work.*[21]
-Jack Nilles, who invented the terms

Telework delivers multiple benefits to employees, organizations, and society at large. Telework is becoming increasingly prevalent in the workforce because its benefits have been repeatedly demonstrated. Employers who have tried it agree that telecommuting is a financially efficient workplace alternative. It saves employers money by reducing the need for travel and time spent in traffic jams and by allowing them to hire additional staff while eliminating the need for additional office and parking space. It saves employees time and money spent on commuting, it reduces stress, and it allows them to spend more time with their families. Large-scale adoption of telework could generate all the benefits listed below and on the next few pages.

Reduce energy use and carbon footprints

"Telecommuting leads to a significant reduction in carbon emissions even when increased home-based carbon emissions are taken into account."[22]
-US Consumer Electronics Association

Telework curbs GHG emissions by kee ping workers off the road or reducing their commute Data from the Environmental Protection Agency (EPA), Department of Transportation (DOT), General Services Administration (GSA), and seven other sources and found that if 33 million Americans worked from home, the US would use 625 million fewer barrels of oil (7.5 billion fewer gallons of gasoline), save $43 billion on gas, and cut GHG emissions by 107 million tons annually. These teleworkers would enjoy the equivalent of an extra five workweeks of free time each year.[23] If a worker with a one-way commute of 22 miles telecommutes five days a week, she will save about 320 gallons of gasoline and reduce CO2 emissions by up to 6 tons annually. She will also save about 4,000 to 6,000 kilowatt-hours of electricity a year—comparable to the electricity consumed by an average household in 4 to 6 months. She will also have 26 extra days that would otherwise be spent commuting, not to mention at least $800 more in her pocket.

"Best Buy, British Telecom, Dow Chemical and others show that teleworkers are up to 40% more productive than traditional office workers....At Sun Microsystems, teleworkers spend 60% of the time they save by not commuting doing work for the company."[24]
-Tom Harnish, *Undress for Success* site

Increase worker productivity

Many managers fear that working at home is distracting, but experts who test telework programs find just the opposite. From Peter Drucker's management-by-objectives in the mid-1950's to Jack Welch's Six Sigma program in the 1990's, setting and measuring clear goals has long been understood as the key to good management. Because telemanagers must focus on productivity, they tend to make sure that their employees' goals are, in Drucker's terms, SMART: *specific*, *measurable*, *achievable*, *relevant*, and *time-specific*. That's why the job performance of teleworkers consistently equals or exceeds that of workers in traditional workplace arrangements. Teleworkers can better concentrate on work without distractions and noise. If a worker must read a mountain of reports, a quiet room at home is preferred to a busy office with distractions and frequent interruptions. Telework cuts down on useless, wasteful meetings, and Web-based meetings are better planned and more apt to stay on message. In a recent study of federal telemanagers, 66% found that teleworkers are as productive as on-site workers.[25]

"The ability to telecommute can have a dramatic effect on the workplace, improving employee recruitment, satisfaction and retention through a better work-life balance."[26]
-CDW Corporation

Improve employee satisfaction

Telework increases personal freedom and flexibility, thus improving morale. Telecommuting can eliminate many costs that eat into employee earnings. Teleworkers save an average of $10,000 per year on gas, clothes, food, parking, and daycare. Full time telework results in an extra 5 workweeks of free time a year—time that would have been spent commuting, which means that teleworkers have more time to spend with family, friends, and community. In a recent survey of 1,800 teleworkers, 90% reported improved morale because of teleworking, and 80% of their managers agreed that morale improved. More than 95% of employers say telework has a high impact on employee retention, and 46% of companies that allow telework say it has reduced attrition.

"More than 78% of people who call in sick aren't sick but are dealing with family issues, personal needs, and stress. Unscheduled absences cost U.S. businesses up to $300 billion/year."[27]
-Tom Harnish, *Undress for Success* site

Reduce worker sick leave, absences, and attrition

Stress is a trigger in many diseases, and telework reduces stressful commutes and alleviates caregiver separation issues, so teleworkers are likely to suffer fewer stress-related illnesses. Teleworkers simply suffer fewer airborne illnesses because they do not contact sick co-workers, and they typically continue to work when they're sick, without infecting others. They also return to work more quickly following surgery or medical problems. Teleworkers can make more time for exercise, and they are much less inclined to eat fast food. Their flexible hours allow them to run errands or schedule appointments without losing a full day of work. Frequent teleworkers use less sick leave because they generally use health care providers located close to home so no work time is lost due to commuting, and frequent teleworkers often work at home for part of a work day instead of taking more sick leave.[28]

"Traffic jams rob the U.S. economy of $78 billion/year in productivity. They idle away almost 3 billion gallons of gas and accounts for 26 million extra tons of greenhouse gases."[29]
-Tom Harnish, *Undress for Success* site

Reduce problems for people who must commute

Teleworking also reduces congestion for those who simply must commute. Every 1% reduction in vehicles yields a three fold reduction in congestion. Highway deaths cost $60 billion a year and result in 3 million lost workdays. More than a quarter of accidents occur during commuting hours. Take the pressure off our crumbling transportation infrastructure. Crumbling transportation infrastructure—new roads are being built to meet needs of 10-20 years ago. Less than 6% of our cities roads have kept pace with demand over the past decade. By 2025 we'll need another 104 thousand additional lane miles—that will cost 530 billion.

"The United States can expect a terrorist attack using nuclear or more likely biological weapons before 2013, reports a bipartisan commission in a study being briefed Tuesday to Vice President-elect Joe Biden."[30]
-The Associated Press

Ensure continuity of operations (COOP)

Telework is a key factor in emergency planning, response, and prevention because it allows for the continuity of operations. Telework decentralizes and spreads out the workforce to reduce the ratio of those impacted by a disaster. In fact, in the wake of the NYC terrorist attacks in 2001, hurricane Katrina, and potential pandemic or other widespread illnesses, many public and private-sector workplace policies now contain a telework component for COOP. Three quarters of teleworkers say they could continue to work in the event of a disaster compared with just 28% on non-teleworkers. Because of the possible impact of natural disasters or pandemics such as bird flu, federal law requires federal agencies to allow employees to the fullest extend possible.[31]

"Less than a third of disabled Americans hold jobs (compared to 80% of rest of the labor force); 41 million disabled Americans are unemployed."[32]
-Tom Harnish, *Undress for Success* site

Reduce geographic and physical boundaries to work

Because employers of teleworkers can hire team members from anywhere that has great Internet access, they have access to the world's biggest pool of potential workers. Telework reduces geographic boundaries, accommodates people with disabilities, and provides new employment opportunities. More than 18 million Americans with some college education aren't working, and more than 24 million Americans work only part time. Telework can expand the talent pool of employees by tapping into this huge, underused labor force. It slows the brain drain from retiring workers, reduces staffing redundancies, and offers quick scale-up and scale-down options.

"IBM slashed real estate costs by $50 million. Dow Chemical and Nortel save over 30% on non-real estate costs. McKesson saves $2 million a year."[33]
-Tom Harnish, *Undress for Success* site

Reduce operating costs

As office real-estate prices rise, telecommuting can provide significant savings, especially for small businesses that operate with narrow profit margins. The cost of operating a computer and a phone line from home is much less than paying for an office away from the home. What's more, many government incentive programs, such as the U.S. EPA National Air Quality and Telecommuting Pilot Project and Oregon's Energy Telework Program, help to cover the initial costs of setting up a home office. Average real estate savings with full-time telework is $10,000 per employee per year.

BARRIERS TO MASS ACCEPTANCE

If the benefits of teleworking are so large, why don't more people telework? The two biggest barriers to overcome before teleworking becomes more popular are *management concerns* and *technical concerns*.

Management concerns

> *"The most vital attribute of a manager is* leadership*, not authoritarianism, not Big Brother behavior...Leadership can be practiced very well at a distance as well as up close. Telemanagement requires leadership ability. Leadership can be learned."*[34]
> -Jack Nilles, the "father of teleworking"

Managing off-site employees is a challenge because it requires a cultural shift in most organizations as managers shift from process-based to results-based management procedures. The shock of this new way of working can be difficult for managers who are only comfortable with "line-of-sight" management. Managing remote workers requires a new set of management skills, and an organization's culture must embrace the new way of working at all levels. Some employees are also afraid to telework because they fear it will stunt their career.

Successful managers must address these "out of sight, out of mind" worries by implementing clear, performance-based, "productivity-vs-presentism" measurement and reward systems for teleworkers. Teleworkers sometimes even face co-worker jealousy, so managers must clarify why employees are or aren't chosen for telework, and maintain uniform standards of selection. Teleworkers who maintain daily contact with co-workers and managers via Web and audio conferences, telephone, email, instant messaging, and occasional face-to-face meetings almost always find that teleworking doesn't adversely impact their career or make them feel isolated and ostracized.

Technical concerns

> *"Every employee who can access the corporate network from home represents another security risk…The good news is there are robust technologies now that can alleviate security concerns."*[35]
> -Bob Sullivan, *MSNBC*

Technical concerns are less of a hindrance to teleworking than management concerns. Computer security managers are understandably nervous about losing control of their networks. Employees working at home who access a corporate network present security risks such as viruses, spam, and stolen corporate information. Those employees must maintain both virtual and physical security in their home offices. But year after year, tools for teleworkers keep getting more powerful, intuitive, and secure. Technologies such as virtual private networks can alleviate digital security concerns, while training and workplace agreements can ensure that teleworkers maintain physical security. Above all, teleworkers must be comfortable with using and maintaining their own technology tools, and have access to remote technical support. Because teleworkers need secure access to corporate systems, software, and data, IT personnel who support them must address security concerns, provide security training, and enhance the IT infrastructure to support them. Fortunately, most infrastructure changes that support teleworkers also improve efficiency for office-based and traveling employees as well.

SOLUTION

> *"Work is something you do, not something you travel to."*[36]
> -EcoTech Technology

Microsoft would gain enormous credibility and goodwill by leading the world into the world of telework. A comprehensive teleworker-empowerment solution would be a huge boon to workers and communities, and would simultaneously help mitigate the problems of global warming, environmental degradation, and rising infrastructure and energy costs. ***By enabling large-scale teleworking, Microsoft could help reduce global GHG emissions by as much as 20%—far more than any other company ever has.*** Microsoft would also dominate what will be one of the most hotly contested markets in computing: tools for mobile workers. In so doing, Microsoft would become the world's most important "green" corporation.

Microsoft's competitors dominate the telework market

> *"Cisco has 12,000 teleworkers scattered across 70 different countries, and that number should grow to 20,000 by next year and 30,000 by 2010."*[37]
> -ZDNet

If Microsoft does not play its traditional leadership role by empowering teleworkers, other technology companies will step into the breech. Avaya, Cisco, Citrix, IBM, Sun, and Teleris are all developing and marketing teleworker solutions, and Google and other companies are contending in this market. Cisco, in particular, is spending significant money to dominate the telework world. Besides its core business of routers and other Internet infrastructure hardware, the company is targeting three growth areas in technology: IM and telepresence tools, online Web conferencing, and data-center virtualization. Cisco Chairman/CEO John Chambers expects to reduce Cisco's GHG emissions by more than 25 percent by 2012 by increasing use of Cisco TelePresence, the Webex suite of tools, and the Cisco Connected Workspace to reduce the need for business travel and commuting. Chambers appeared with Al Gore at VoiceCon 2008 conference in Orlando by using Cisco's TelePresence systems. They spoke about how the emergence of high-quality videoconferencing has the potential to provide a viable solution for businesses that seek to cut expenses and carbon emissions.

Microsoft has everything it needs to empower teleworkers

Cisco and other companies have caught on to the potential of teleworking, yet Microsoft has a built-in advantage in this market. Microsoft has a long history of integrating complex software, hardware, and network infrastructure elements to develop compelling technical solutions. What's more, Microsoft already creates and sells virtually all the products, tools, technologies, and services needed for a comprehensive, end-to-end teleworker platform:

- **Operating system software:** Windows Server, Windows XP, Windows Vista, and the next version of Windows
- **Secure email:** Microsoft Outlook and Microsoft Exchange Server

- **Unified Communications (UC) software and hardware:** Office Communications Server, Office Communicator, Office Live Meeting, and other products that empower mobile workers with tools such as:
  - Voice over IP (VoIP) telephony
  - Web-based video-conferencing and collaboration
  - Instant Messaging (IM) and Presence
  - RoundTable Web conferencing camera
- **Other Web conferencing hardware:** Microsoft LifeCam and LifeChat Internet communications products
- **Mobile phone software:** Windows Mobile running on a vast array of mobile devices
- **Document-repository and collaboration software:** Microsoft SharePoint Server and Microsoft Groove

Though any complete teleworker-empowerment solution that Microsoft might develop would take advantage of all of the above product lines, for purposes of this paper, we will concentrate on the capabilities of UC software and hardware, which by itself provides compelling benefits to teleworkers.

What Microsoft must do to compete in the telework market

> ***Cloud worker:*** *Somebody who uses on-demand technology and collaboration tools, such as unified communications, to work anywhere and anytime.*[38]
> -Plantronics Telewho site

Because other vendors such as Cisco dominate the market for telework tools, Microsoft is currently at a disadvantage and must gain ground quickly—or be left far behind in this arena in the next decade. Microsoft must make a serious commitment to winning in the telework market if it doesn't want to become marginalized permanently. Microsoft must also get serious about letting more of its own workers telework so that they can fully understand the management and technology issues involved. One step in the right direction is that the Microsoft Entertainment & Devices group is letting some of its employees telework in a feasibility study that uses ROWE strategies.

Microsoft must also address the two biggest concerns its customers have in this arena: how to manage teleworkers, and how to find and apply the best technologies for teleworkers. ***To compete in this market, Microsoft must understand that it's not just about the technologies; it's about how to use those technologies to manage remote workers. If Microsoft fails to grasp this concept, it will lose in this market, and its competitors will win. Microsoft has been too concerned with talking about its technologies and not enough on how to apply them in specific telework situations.*** Microsoft must not only develop and integrate the right tools for teleworkers, but must also supply concrete "top down" information and encouragement to potential telemanagers and practical, "bottom up" how-to information and encouragement to potential teleworkers.

Following are a variety of steps that Microsoft could take to succeed in the telework market.

> *"It's much better, in a depressed economy, to err on the side of too much stimulus than on the side of too little."*
> -Paul Krugman, *The New York Times*[39]

Propose teleworker incentives in Obama's economic stimulus package

President-elect Obama's administration plans to spend hundreds of billions of dollars for new highways, bridges, and other infrastructure elements over the next two years to stimulate the economy. Some of this spending will be for traditional public works projects that are "shovel ready"—planned, approved, and ready to start as soon as money is available. But Obama's advisors also want to spend tens of billions of dollars on clean energy research, electric vehicle programs, vastly improved broadband access, and other environmentally sustainable programs that can create green-collar jobs.

It's "unacceptable" that the U.S. ranks 15th in the world in broadband adoption, Obama has said. He already supports increased teleworking and more flexible work schedules for federal government employees. He recently said, "It's time we stopped talking about family values and started pursuing policies that truly value families...with the federal government leading by example."[40] He also said, "If members of Congress have good ideas, if they can identify a project for me that will create jobs in an efficient way, that does not hamper our ability to — over the long term — get control of our deficit, that is good for the economy, then I'm going to accept it."[41]

A member of Congress who will have a decisive influence on selecting these bold new ideas for the Obama administration is Rep. Jay Inslee of Washington state's 1st congressional district, which encompasses Microsoft headquarters. Inslee is co-chair of the newly formed Sustainable Energy & Environment Caucus, which will spearhead the Obama stimulus package's green initiatives.[42] Inslee is the primary congressional sponsor of the New Apollo Energy Act—the basis for much of Obama's energy program—and a cofounder of the Apollo Alliance, an advocacy group of unions, environmental groups, and business organizations that are committed to fostering a green economy. Senators Maria Cantwell and Patty Murray of Washington have also been pressing Obama's advisors to double the funds dedicated to energy tax credits and alternative energy expenditures in the stimulus bill.[43] Both are members of the Senate Democratic High-Tech Working Group, which has advocated increased teleworking for federal workers.

While Obama and his advisors promise pork-free, green stimulus projects, there will inevitably be conflicts between creating jobs now and engaging in good planning, which can take a decade or more for smart-growth transportation projects such as mass transit systems. What's more, it will take many years for clear winners to emerge in the alternative-transportation and alternative fuels markets, and few think it's a good idea for the heavy hand of government to

choose those winners. But teleworking is ready to go now; the technologies, though they will improve dramatically in the next decade, are available today. In fact, an aim of the stimulus package that's already been stated is to enhance broadband access for all Americans. No matter which companies prevail in bids to enhance broadband access, many more companies and the public at large will share in its benefits via improvements in telework, e-commerce, and more.

For this reason, Microsoft should use its local connections with Representative Inslee and Senators Cantwell and Murray by lobbying them to include in the stimulus package subsidies or tax incentives for businesses and organizations that employ teleworkers. Microsoft should position these as "mouse-ready" alternative-energy and alternative-transportation expenditures that will create new business opportunities right away, especially in rural and depressed areas, and connect the under- and unemployed to jobs elsewhere. Microsoft should point out that the alternative is just creating more car-choked highways, bridges to nowhere, air pollution, and greenhouse gases: business as usual. There has so far been little talk of teleworking as part of the stimulus package, so it's hard to tell if other telework-tools vendors are lobbying for telework subsidies. It'd be surprising if other vendors such as Cisco haven't thought of it, however. A non-IT group that is pushing for telework subsidies in the stimulus package is the American Homeowners Grassroots Alliance (AHGA). "We have suggested that one of the tax components should be a teleworking tax credit, similar to the $2,000 hybrid vehicle tax credit, and with many of the same goals in mind," says AHGA President Bruce Hahn. The credit would cover PC hardware and software, plus broadband access for teleworkers and their employers. The tax credit would provide a demand-side complement to the stimulus package's planned broadband infrastructure investments, which are very popular with consumer groups, telecoms, and other corporations.

Microsoft should join the AHGA and any other organization they can find to propose a bold new program: to wire up three million people for teleworking—equal to the number of jobs that Obama's advisors want to create or save in the next two years with the stimulus package. Microsoft should join with the AHGA to propose that potential teleworkers get a state-of-the-art PC, a Web cam, and all the software they need to telework. At a cost of $2,000 per worker, the total expense would be only $6 billion—a pittance compared to some of the other green-jobs ideas that have been floated so far for the Obama stimulus package. No wonder. Teleworking is cheap, compared to the alternatives.

With its broad product line, Microsoft would benefit somewhat no matter which vendor supplied the telework tools and technologies in this program. If its own telework tools were chosen, of course, Microsoft would gain a huge ongoing advantage in the telework tools arena.

"The Telework Pilot Project presents an opportunity for select companies in Kitsap county to be at the forefront of the shift towards a mobile workforce in the state of Washington…Telework can do more faster and at less cost than any other single transport out there...You have to move from managing by the clock to managing by the product or deliverable."[44]
-Ed Stern, Poulsbo city councilman

Propose telework pilot programs with state and local governments

Many state and local governments already support teleworking, and most others are interested in it. The state of Washington is currently conducting its first telework pilot project in Kitsap county. Funded by a $150,000 grant from the state, the pilot program will serve as a template for all communities in the state that want to implement telecommuting programs. The pilot program will culminate in the creation of a toolkit that will explain how to create a successful teleworking program and provide all the tools that employers and employees need to telework successfully.

The Kitsap Regional Coordinating Council (KRCC) is driving the pilot program and developing the toolkit. KRCC hopes to involve at least 75 local businesses in the pilot program; if they find enough participants, they'll use a building in Bremerton to establish satellite offices for teleworkers who would otherwise commute by ferry to Seattle and beyond. All of Kitsap county's state legislators support the pilot program, including Phil Rockefeller and Christine Rolfes, both of whom coincidentally live in Congressman Inslee's hometown, Bainbridge Island, and know him well. (Inslee hosted the kickoff for Rockefeller's 2008 reelection campaign.) The study will be completed by June 2009.

The Kitsap county pilot program is the brainchild of Poulsbo city councilman Ed Stern, a long-time advocate of telework. "Kitsap county is the perfect laboratory for this experiment," he says. "We are isolated by bridges and ferries. As a result, we have one of the longest average commutes in the country. Workers will embrace this because it will allow them to spend more time with their families and doing what's important to them…Telecommuting can cure multiple ills, and is easier to put into place than building a bicycle lane."[45] Stern and the KRCC have hired a telework consultant, Monica Babine, from the Center to Bridge the Digital Divide at Washington State University.

Microsoft should actively support the pilot project in the state of Washington by appointing an individual or team to do the following:

- Set up and run remote meetings among the project's principals (the KRCC and its consultants) by using Live Meeting. This person could also set up Live Meeting accounts for all the principals and train them on how to use Live Meeting so they can meet in their own. Having one of its main teleworkers tools adopted by the principals would be a coup for Microsoft, especially if the principals spread the word about the benefits of Live Meeting. It would be especially impressive after the epic bad weather that the Northwest has had this winter, because the principals can more easily grasp the benefits of meeting and sharing documents online not long after bad weather closed most of Kitsap county's main roads for a week.

- Provide free Live Meeting accounts for selected participants for the duration of the pilot project, and write case studies about those participants. In addition to building goodwill among the pilot program's principals and participants, this would generate positive PR among government officials who are interested in telework in the state, and it would supply Microsoft marketers with a ready source of subjects for future Microsoft UC case studies, which is surprisingly difficult to find.
- Help Kitsap county create the official Washington state Telework Toolkit at the end of this study. This toolkit would be fairly easy to compile from the many telework toolkits already available online from various telework organizations and from books such as the classic "Managing Telework" by Jack Nilles, who invented the terms "telework" and "telecommute." This toolkit could also serve as the basis for an official Microsoft Telework Toolkit, which surprisingly Microsoft doesn't yet have.

After helping Washington state complete its telework pilot program, Microsoft could credibly propose the same kind of pilot program in other states. Doing so would give Microsoft inside access to government officials all across the country who are interested in teleworking, and it would vastly increase Microsoft's visibility as a telework leader because government at every level leads the private sector in adoption of teleworking programs.

Create a Web site targeted at teleworkers and telemanagers

Microsoft must develop a Web site with which it can credibly target workers, managers, and business owners with information about teleworking. Microsoft already has many resources for teleworkers on its site, but like most information on Microsoft.com, these resources are poorly organized and difficult to find, even with the powerful search tools on the Microsoft site. Microsoft should try to make its teleworker site the first place on the Web that anyone goes to for information about how to set up a telework program, how to telework, and how to manage teleworkers. A good model for this is Telework Exchange, a "public-private partnership focused on demonstrating the tangible value of telework and serving the emerging educational and communication requirements of the Federal teleworker community." Another good model is the Microsoft internal IT site, which includes much of the following. The Microsoft telework site should include features and information such as:

For everyone interested in teleworking

- **Telework technical information:** Specifics about all the various Microsoft products and services that enable teleworking. Microsoft could package this information in various ways for teleworkers, managers, business owners, government officials, and more.

- **Interviews with teleworking experts:** Microsoft could interview any number of experts on teleworking, starting with Jack Nilles, "the father of telecommuting," who coined the terms *telecommuting* and *teleworking* in 1973 during the first documented pilot telecommuting project. To showcase its UC products, Microsoft should conduct these interviews using those products and post the interview transcripts, video, and audio online.
- **True tales of extreme teleworking:** Entertaining, enlightening, interest-piquing stories about how people telework from exotic places or in unusual circumstance—the more adventurous the work and circumstances, the better. Example: Someone who teleworks part of every year for a company in the United States from a home in a Central or South American rainforest.

For business owners and teleworker managers

- **Articles about how to manage a virtual workforce:** Focused facts about management strategies such as management by results and results-only work environments (ROWE).
- **Data on how teleworking can save money:** An Excel spreadsheet into which managers and business owners can plug their numbers to understand the return on investment of telework.
- **Tips to help ensure teleworking works:** Advice from experts on how to ensure teleworkers are productive, along with information about how to address legal, labor, safety, and security issues.
- **Data on how to train and retain good workers:** Advice on how to ensure teleworkers are productive, well-trained in the needed technologies, and eager to continue to work for an employer.

For teleworkers and potential teleworkers

- **Teleworker tips and tricks:** Concrete product information about how to use technology to telework successfully, with links to articles about how to use Microsoft products.
- **Tips on how to persuade your boss to let you telecommute:** Persuasive talking points to use with managers who don't understand or may resist teleworking. Several current telecommute sites include tips like these.
- **Teleworker forms:** Everything that might help teleworkers justify telecommuting to their managers, such as policy guidelines, teleworker self-assessments, feasibility worksheets, agreements with employers, applications to telework, and so on. Forms like these can be found on many Web sites.
- **A teleworker accelerator kit:** Everything in the bullet points above.

Create more case studies about Microsoft tools for teleworkers

Microsoft should develop a new kind of case study that not only emphasizes Microsoft products and technologies for teleworkers, but also shows what telework processes and procedures worked best for both telemanagers and teleworkers. This "what worked for us" section could take the form of a standard sidebar on the second page of the Microsoft case study template, or be included in the standard sidebar metrics on the first page of the template. The new case study template should also provide metrics on the first page of the template that show precisely how much the organization saved in dollars and how much it reduced its carbon footprint by adopting teleworking. Case study writers can calculate these metrics by using the *CO2 Emissions from Business Travel* spreadsheet developed by the World Resources Institute and the *Cost Per Person Model* spreadsheet developed by the U.S. General Services Administration.

Institute telework Webinars that showcase Microsoft technologies

Microsoft should develop a series of free Webinars for teleworkers, managers, and business owners. Models for such Webinars by other vendors are the Citrix GotoWebinar series and the Telework Exchange Webcast series. Webinars on both typically feature several business managers who discuss how they used telework technologies in the workplace. These Webinars also feature experts discussing telework best practices and strategies. Microsoft could run a similar series of Webcasts that demonstrate the details of how real-world managers can use UC technologies to manage virtual workers, reduce costs, and so on. Given company's vast experience in scalable content servers, Microsoft could use such Webinars to target tens of thousands of potential customers at time.

Run an advertising campaign that targets teleworkers

Microsoft should start a new advertising campaign to target people and businesses interested in teleworking. The campaign might play up the disgust that most workers have for commuting, and point out that a better way: teleworking. Ads should point out the daily advantages of a carpet commute over a physical commute: no time spent in traffic, no exposure to workplace germs, more time spent with family, friends, and Fido, and so on.

The ads could be amazing-but-true tales of "extreme telecommuting," about people teleworking in unusual places and circumstances, like the eye-catching personal Web stories mentioned earlier. Or they could be testimonials in the style of the current "I'm a PC" campaign, as in "I'm a teleworker."

Above all, the ads should be funny, touching, interruptive, and memorable, and must be targeted not only at current business leaders and older teleworkers but also at generation-Y workers entering the workforce, who are comfortable with the notion of working anywhere, anytime, on any device.

CONCLUSION

Where do you want to go today?
-Microsoft slogan, 1990s

Where don't you go to work today?
-What teleworkers ask themselves daily

Operating systems. Networking software. Graphical computing. Web browsing. Internet search. The list of arenas in which Microsoft originally missed the boat and then had to play catch up is long and famous. Teleworking could be another. If Microsoft ignores the potential of telework, it will pass on one of the biggest opportunities in the history of computing, and let Cisco and other companies run free in this vital market. Whoever controls the telework platform in the home or satellite office will own one of the prime pieces of computing real estate in 10 years. Working at home is an enticing dream for tens of millions of people. Microsoft could make their dream a reality—and in the process, help save the planet. What will Microsoft do?

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